

FIG. 1

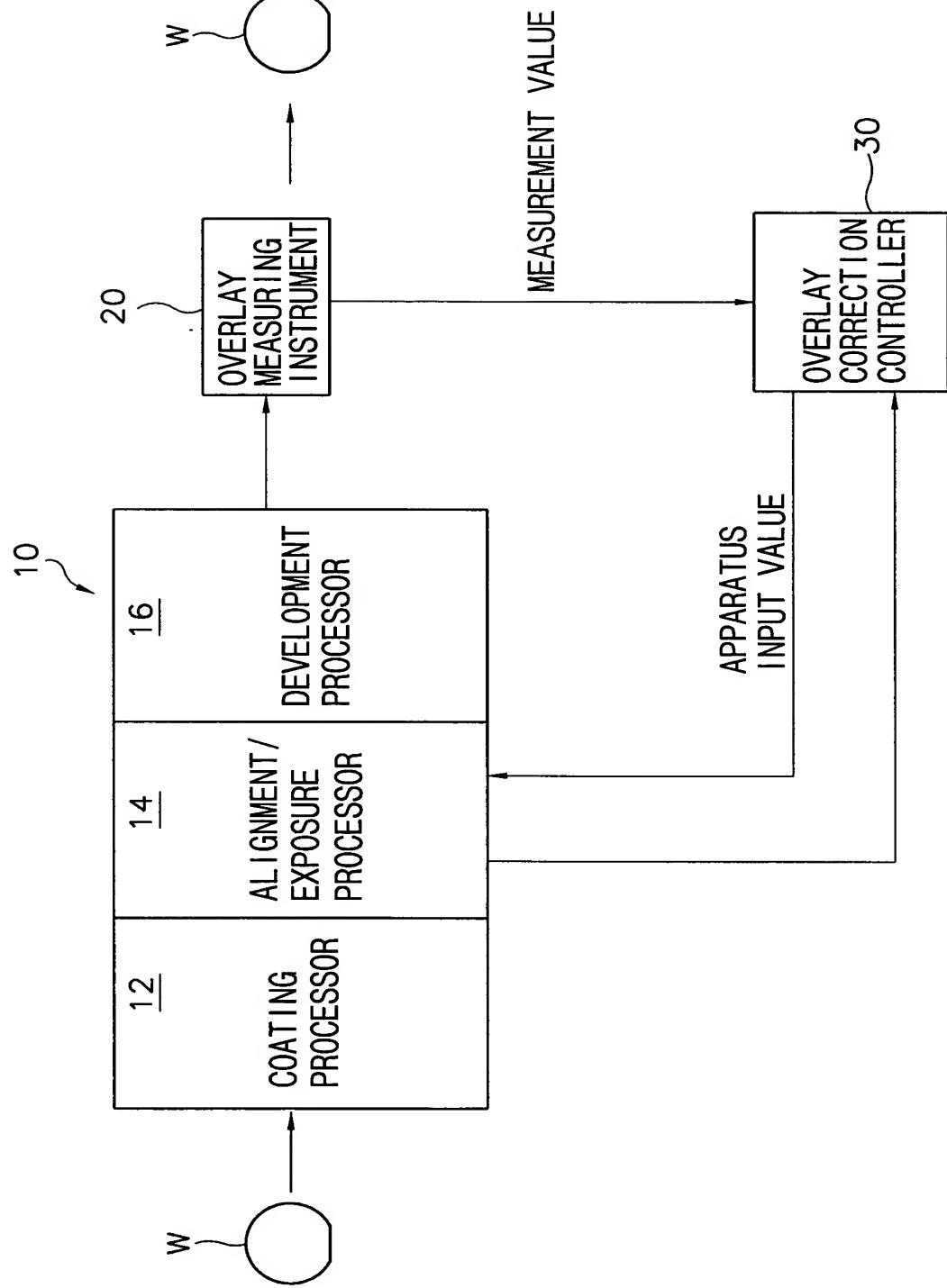


FIG. 2

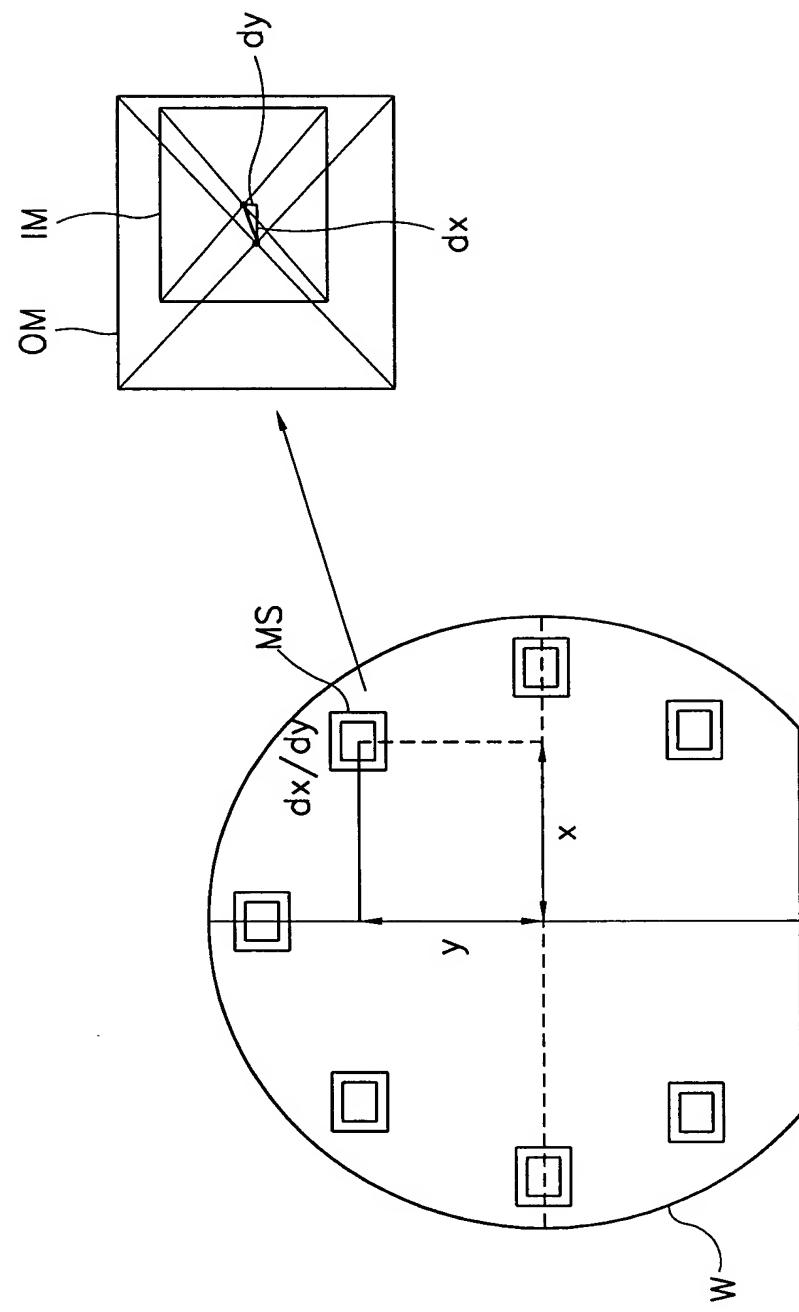


FIG. 3

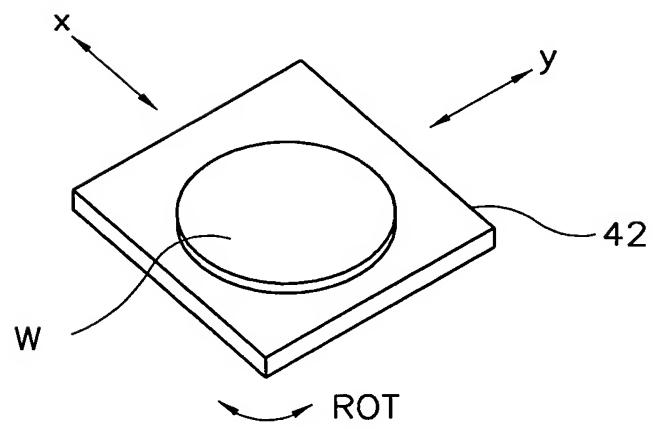
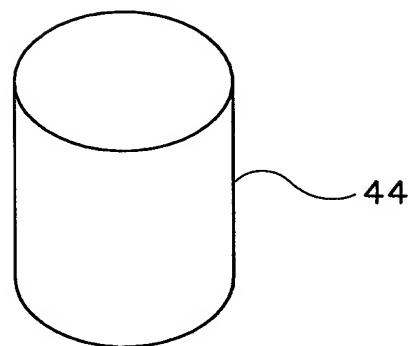
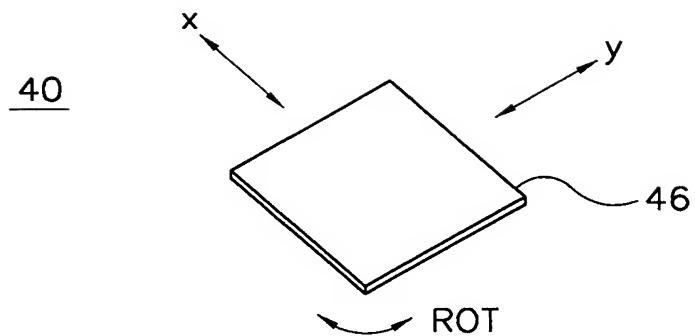


FIG. 4

TOP SECRET//NOFORN

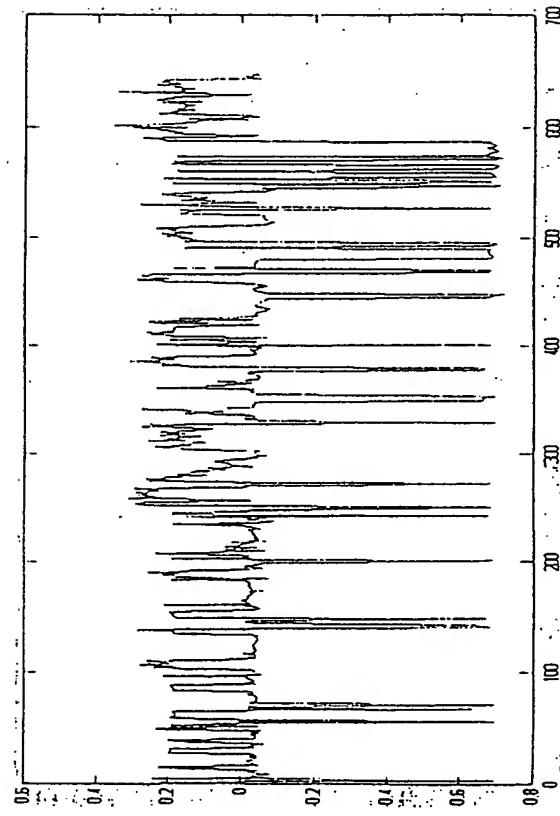
MEASURING TIME
LOT ID
OF-X
OF-Y
SC-X
SC-Y
ORT
W-ROT
RED-X
RED-Y
ROT-X
ROT-Y

FIG. 5

720242641-001200

GENERATING TIME			
LOT ID			
FWD OF-X	RET OF-X	NN OF-X	IN OF-X
OF-Y	OF-Y	OF-Y	OF-Y
SC-X	SC-X	SC-X	SC-X
SC-Y	SC-Y	SC-Y	SC-Y
ORT	ORT	ORT	ORT
W-ROT	W-ROT	W-ROT	W-ROT
RED-X	RED	RED	RED
RED-Y			
ROT-X	ROT	ROT	ROT
ROT-Y			

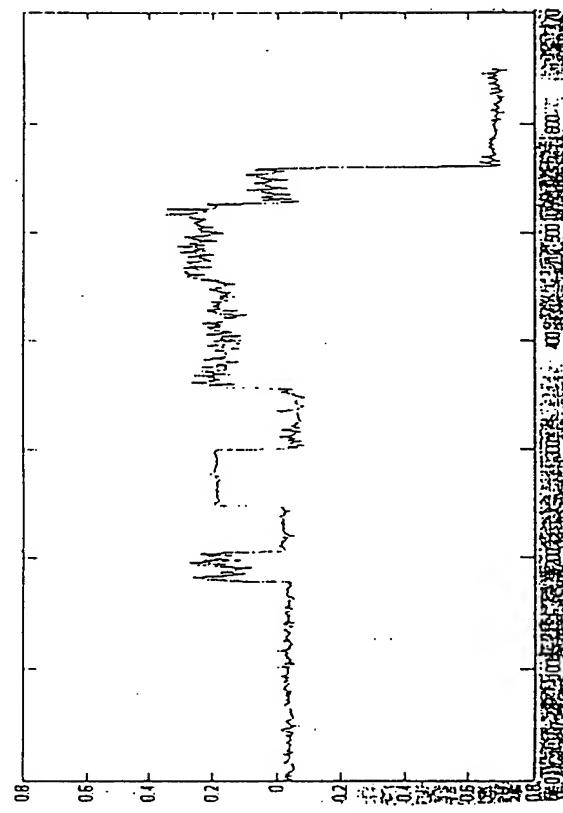
FIG. 6



CORRECTION APPARATUS INPUT (TIME SEQUENCE)

FIGURE 7

FIG. 7



CORRECTION APPARATUS INPUT AFTER SUBTRACTING
MEAN VALUE PER IDENTICAL HISTORY

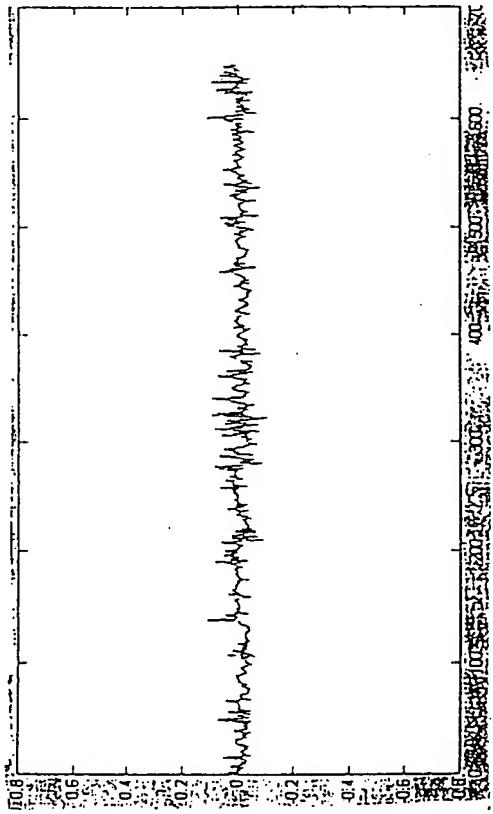


FIG. 8

x(n) OF SAMPLE APPARATUS 1 WITH RESPECT TO OFFSET-x

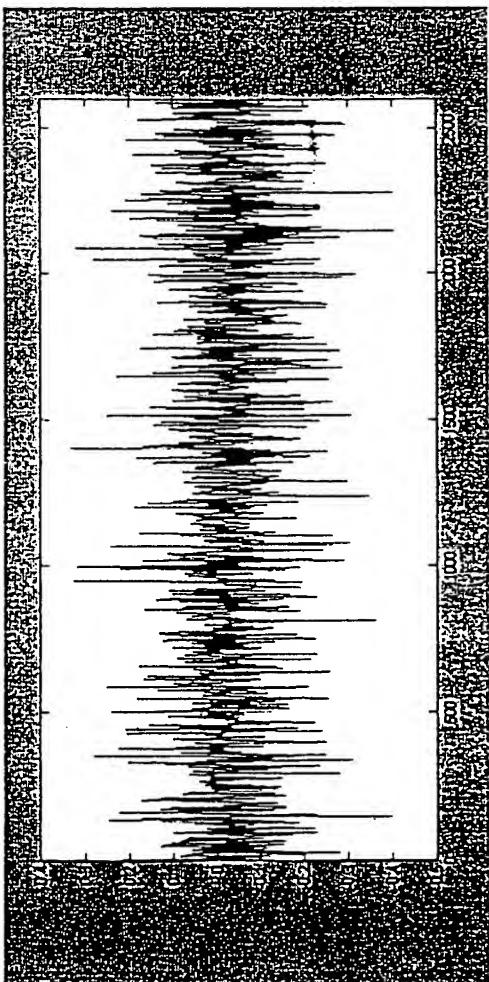
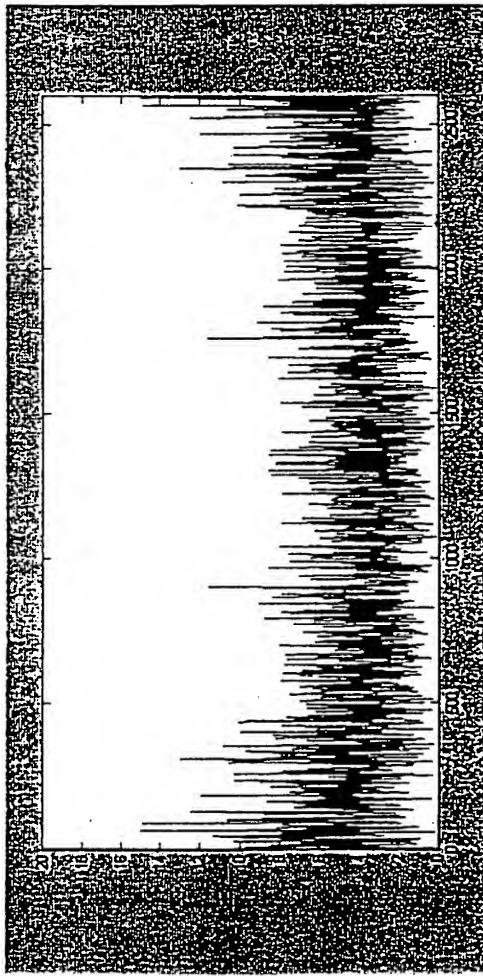


FIG. 9

20 30 40 50 60 70 80 90 100

FIG. 10



FREQUENCY SPECTRUM OF $x(n)$

FIG. 11

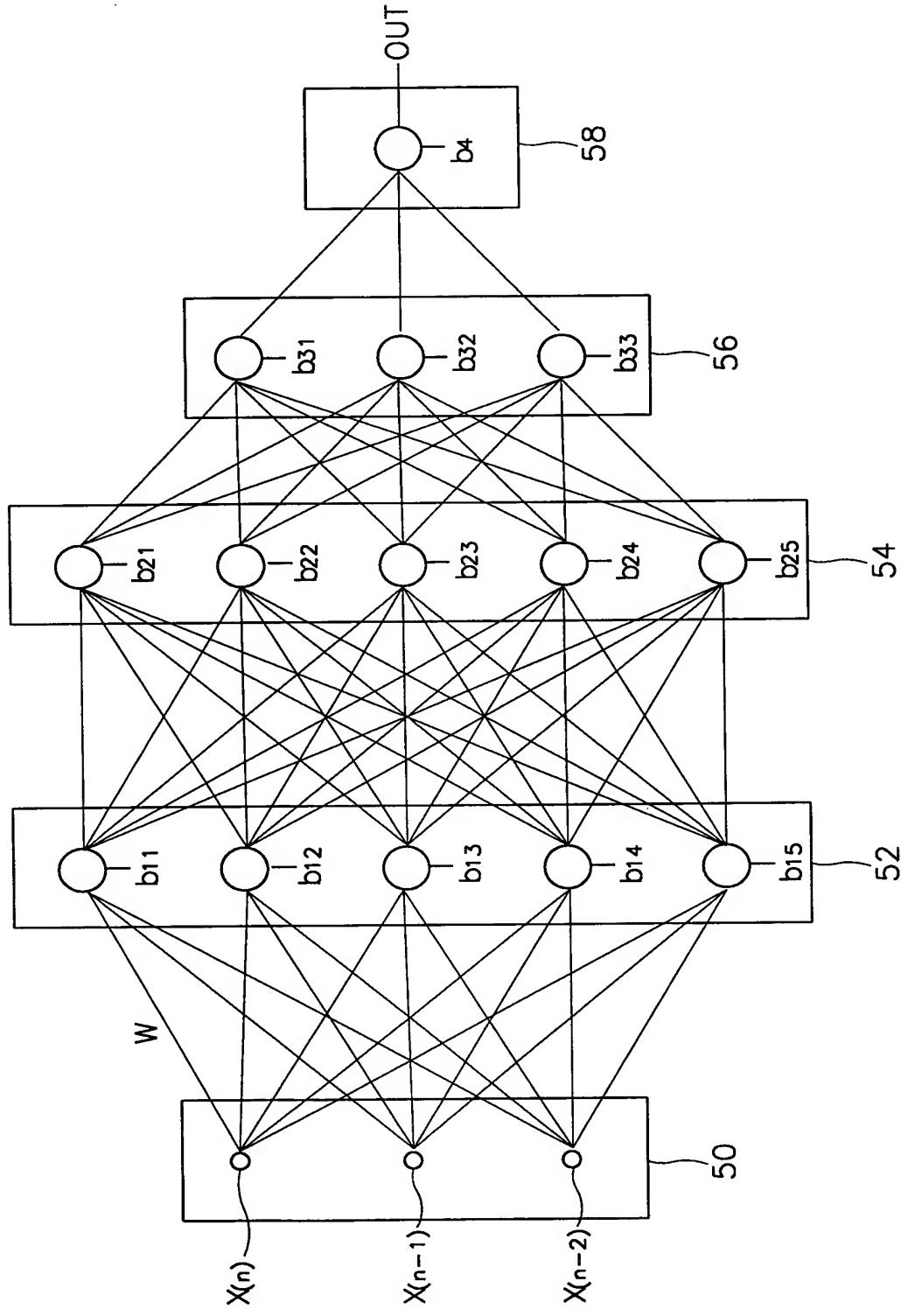


FIG. 12

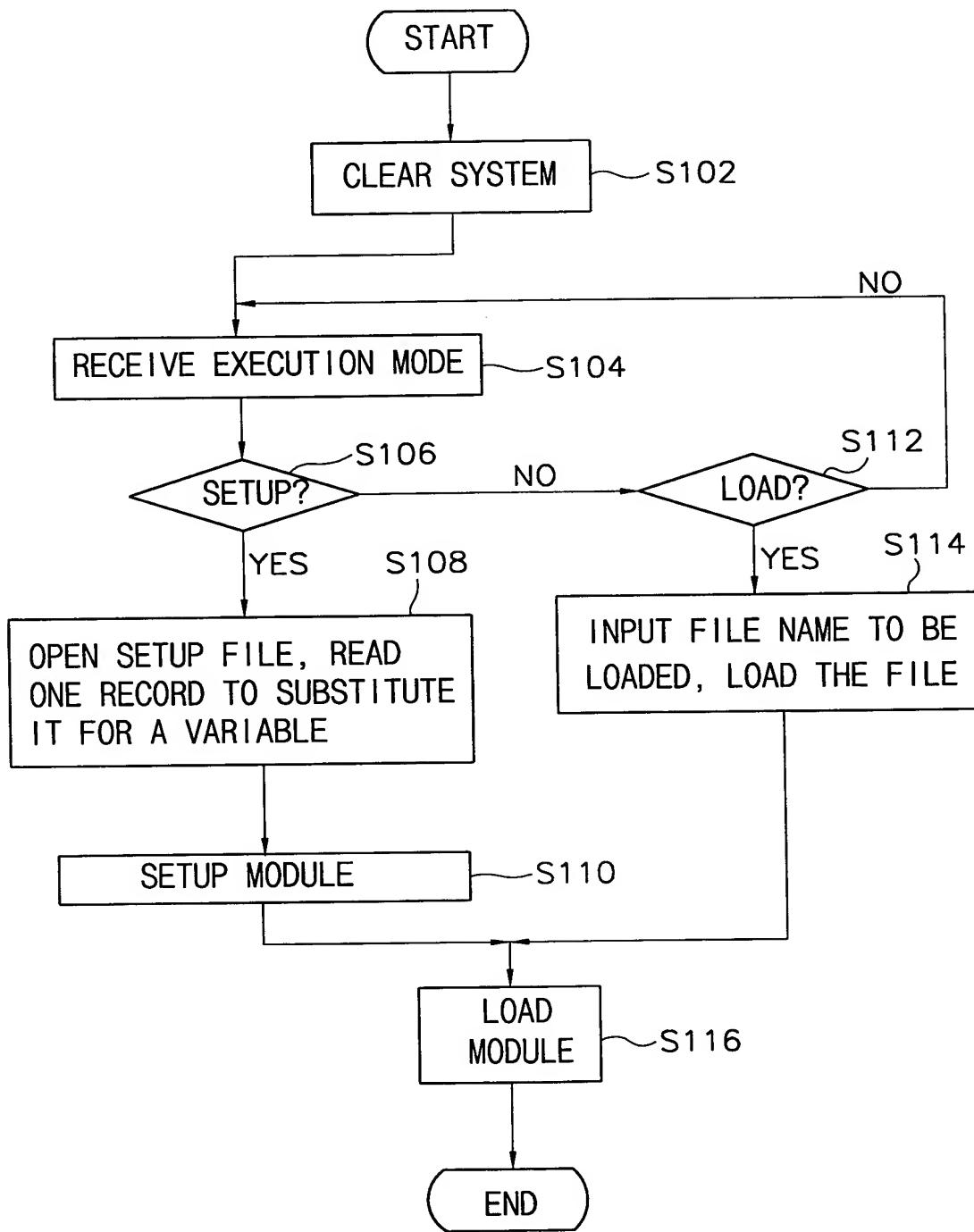


FIG. 13A

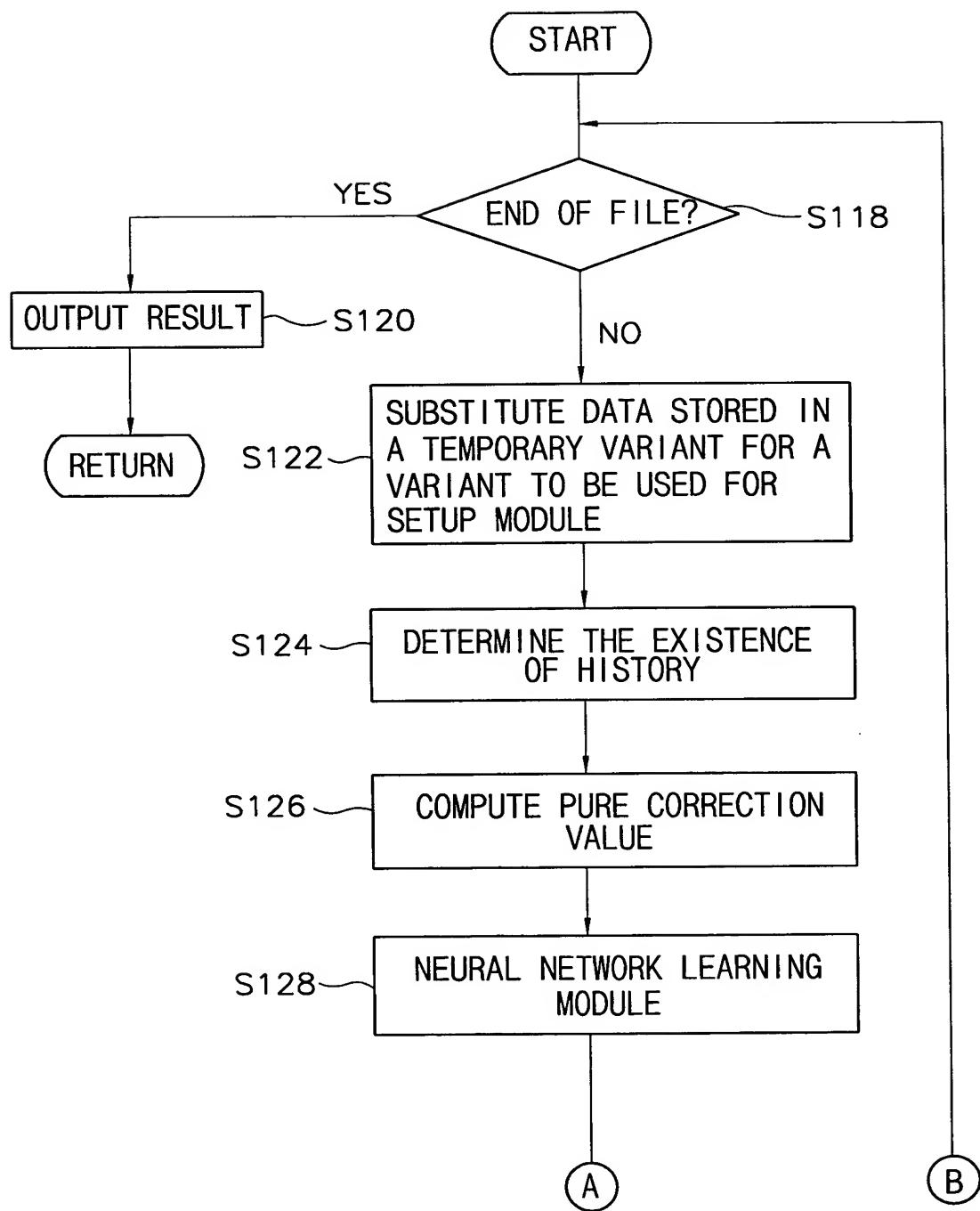


FIG. 13B

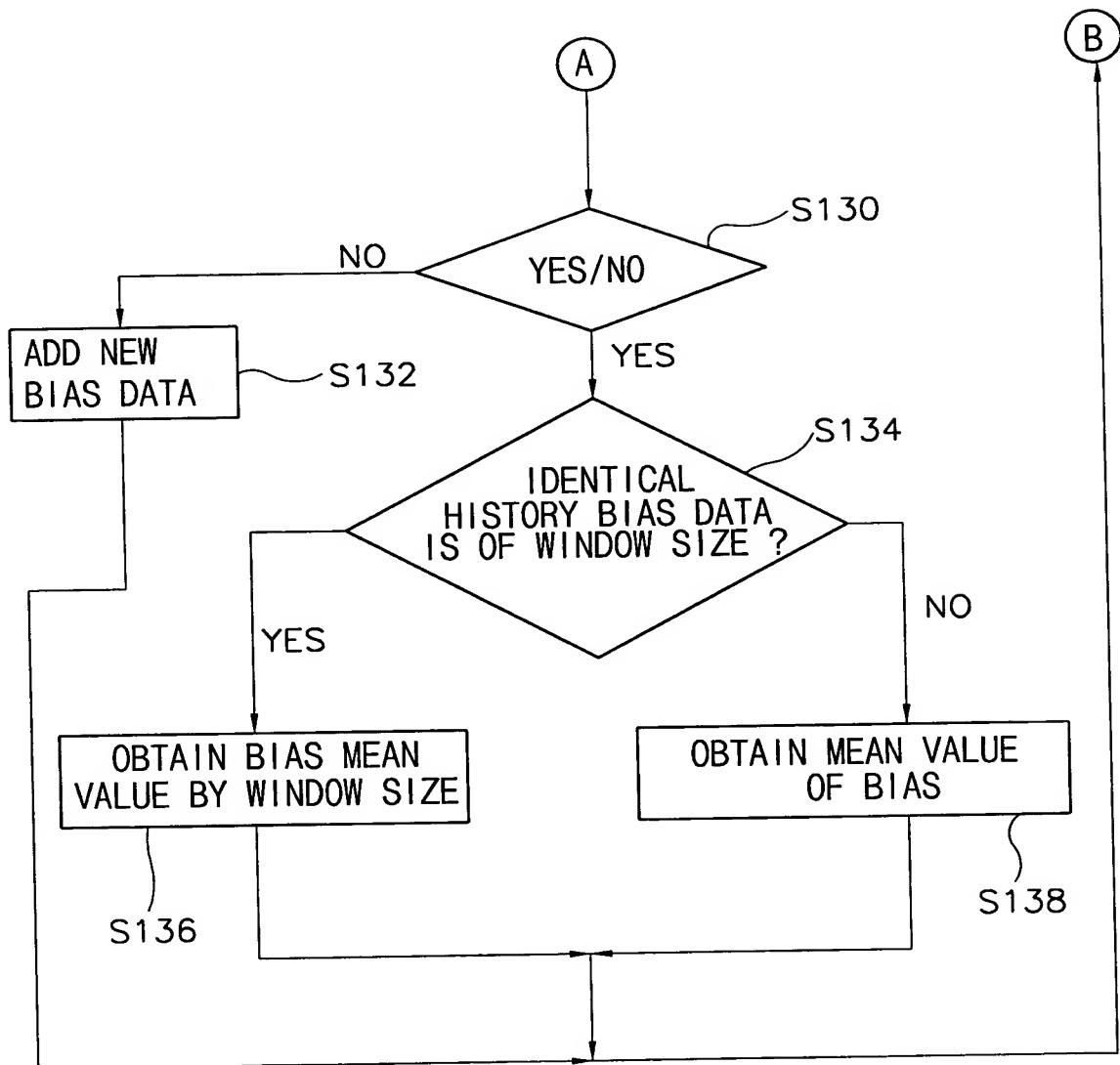


FIG. 14

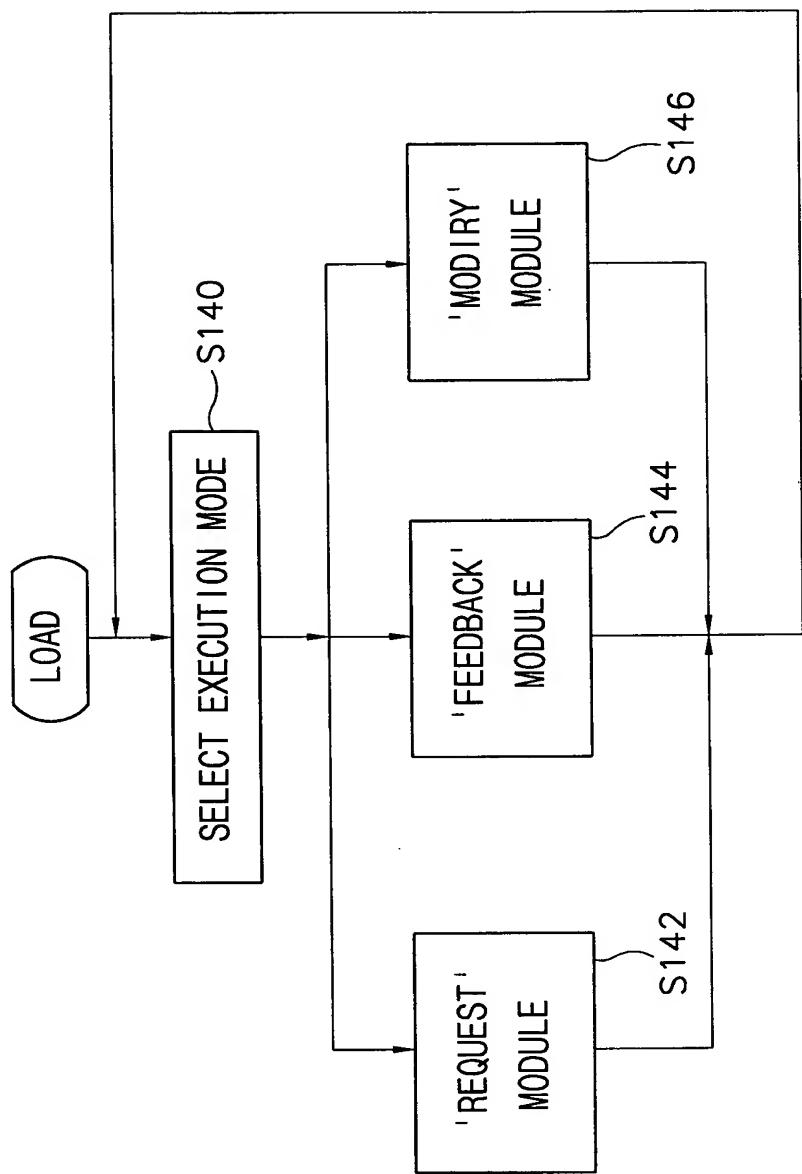
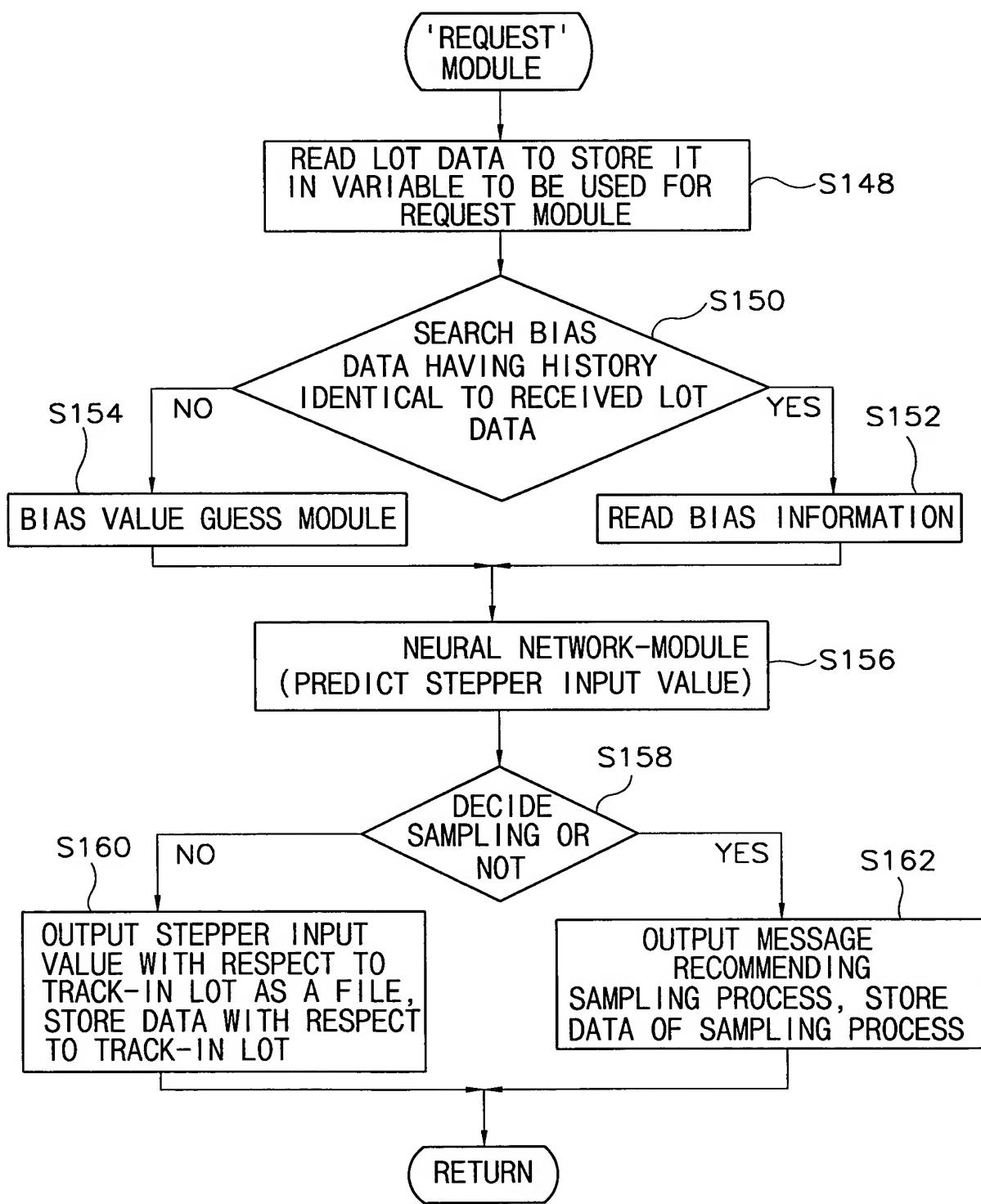


FIG. 15



AUGUST 2001 - 021, 022

FIG. 16

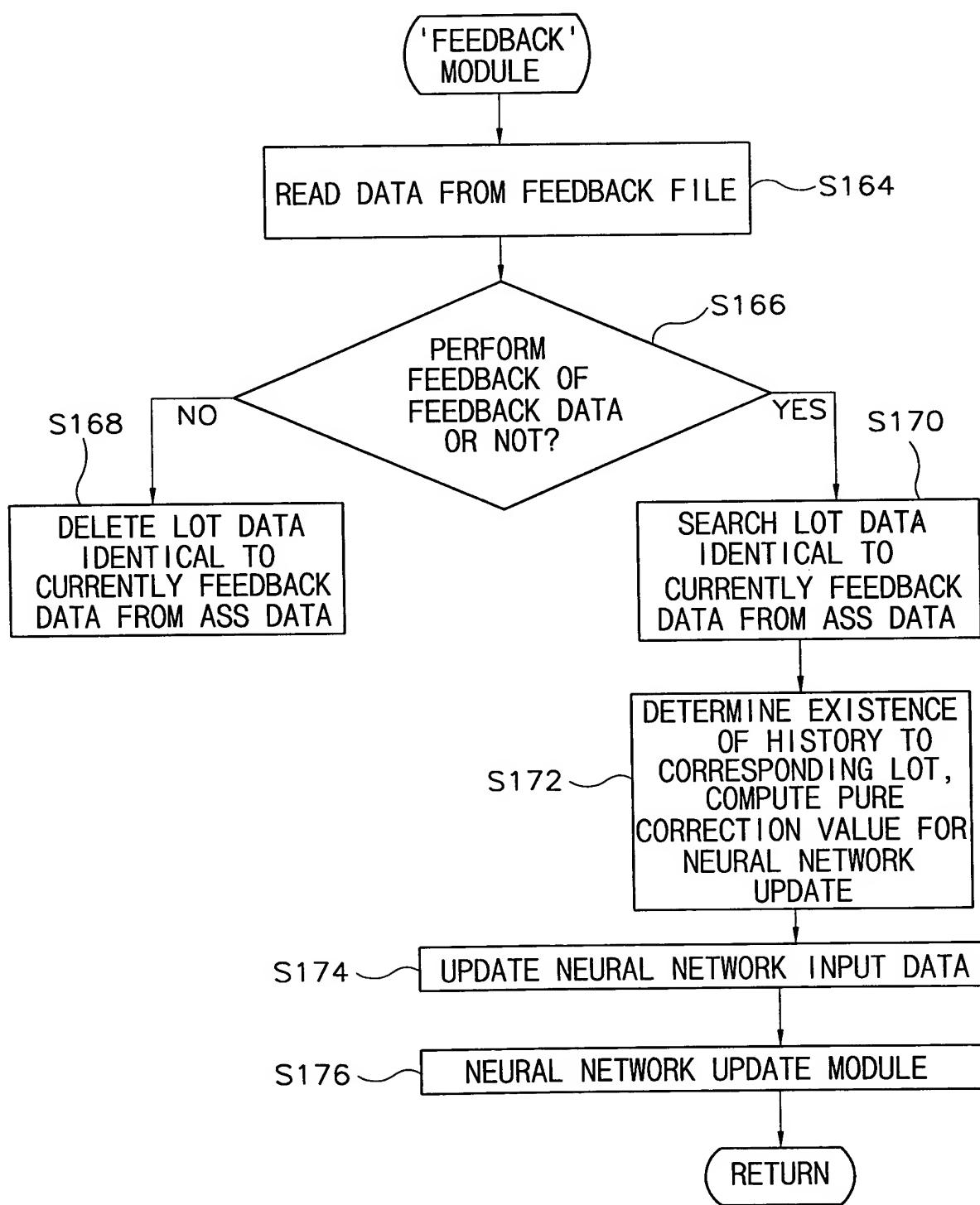


FIG. 17

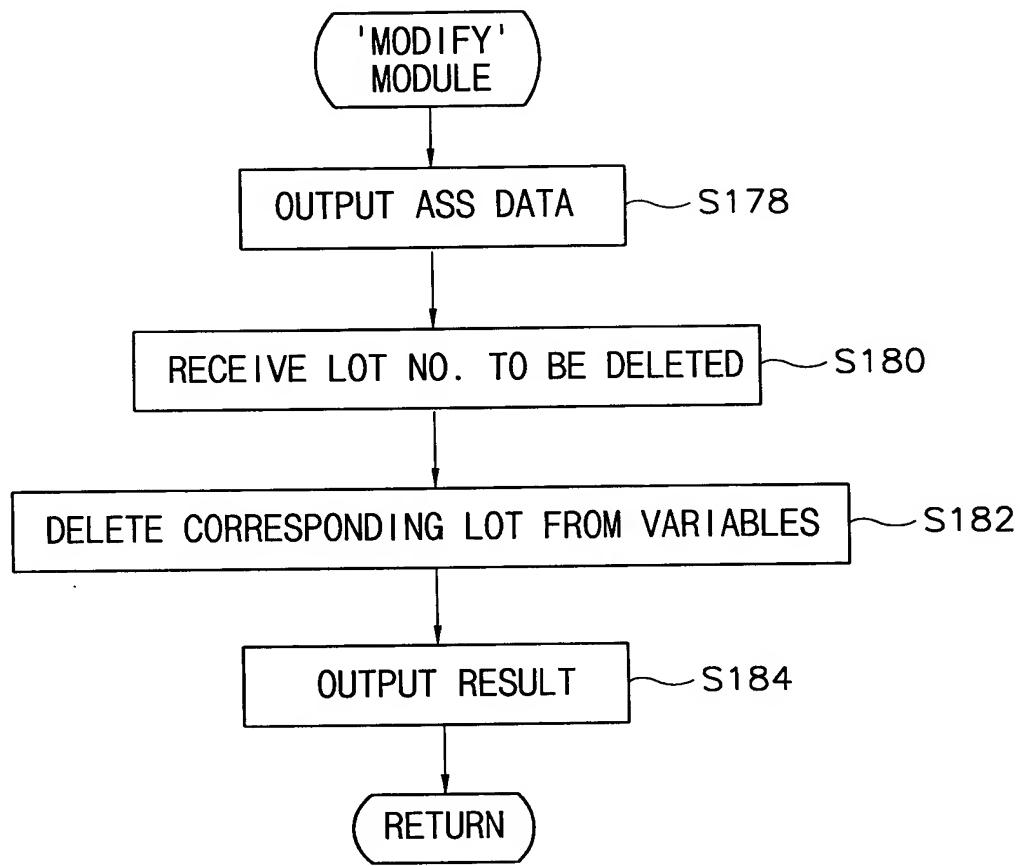


FIG. 18A

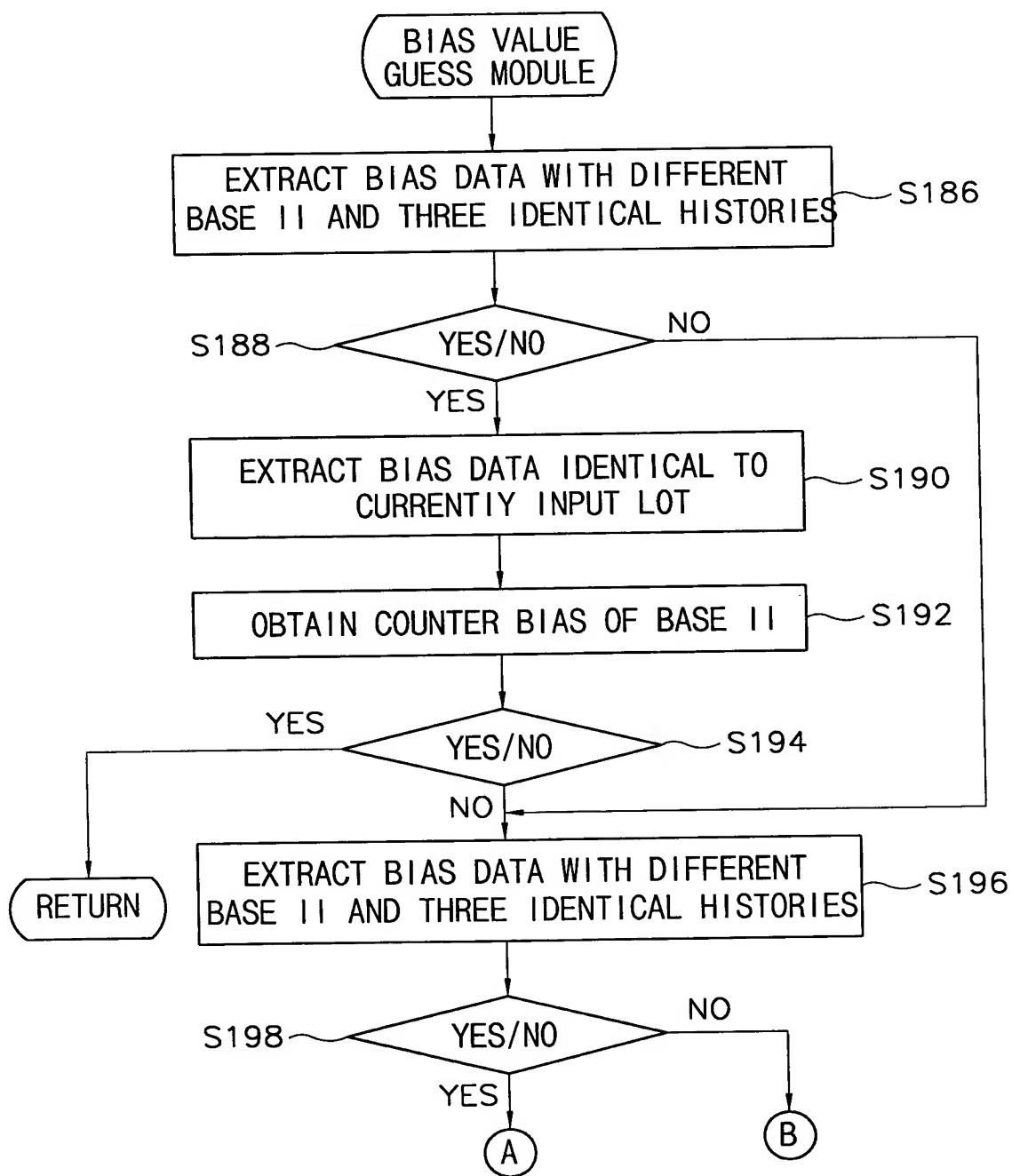


FIG. 18B

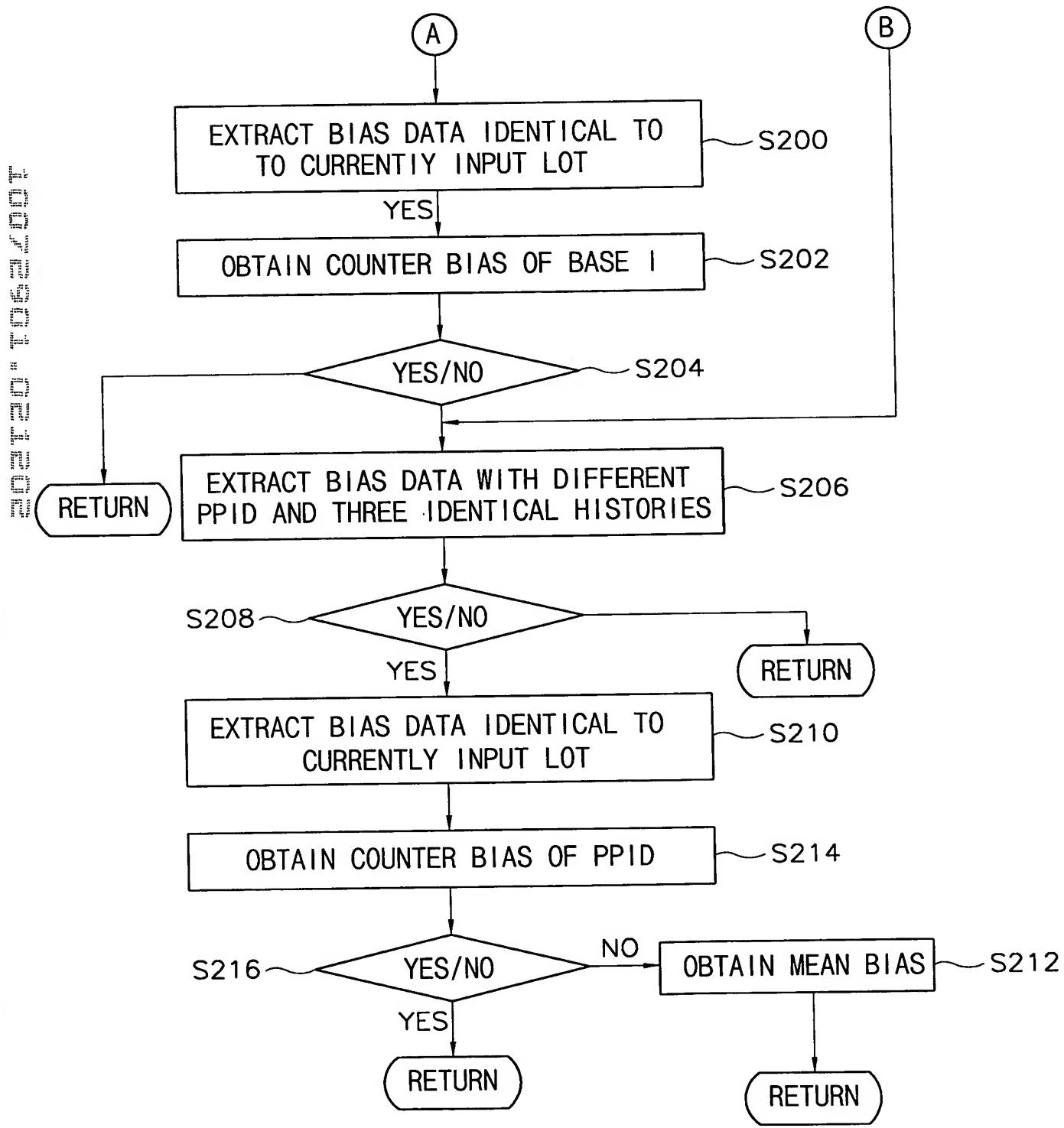


FIG. 19

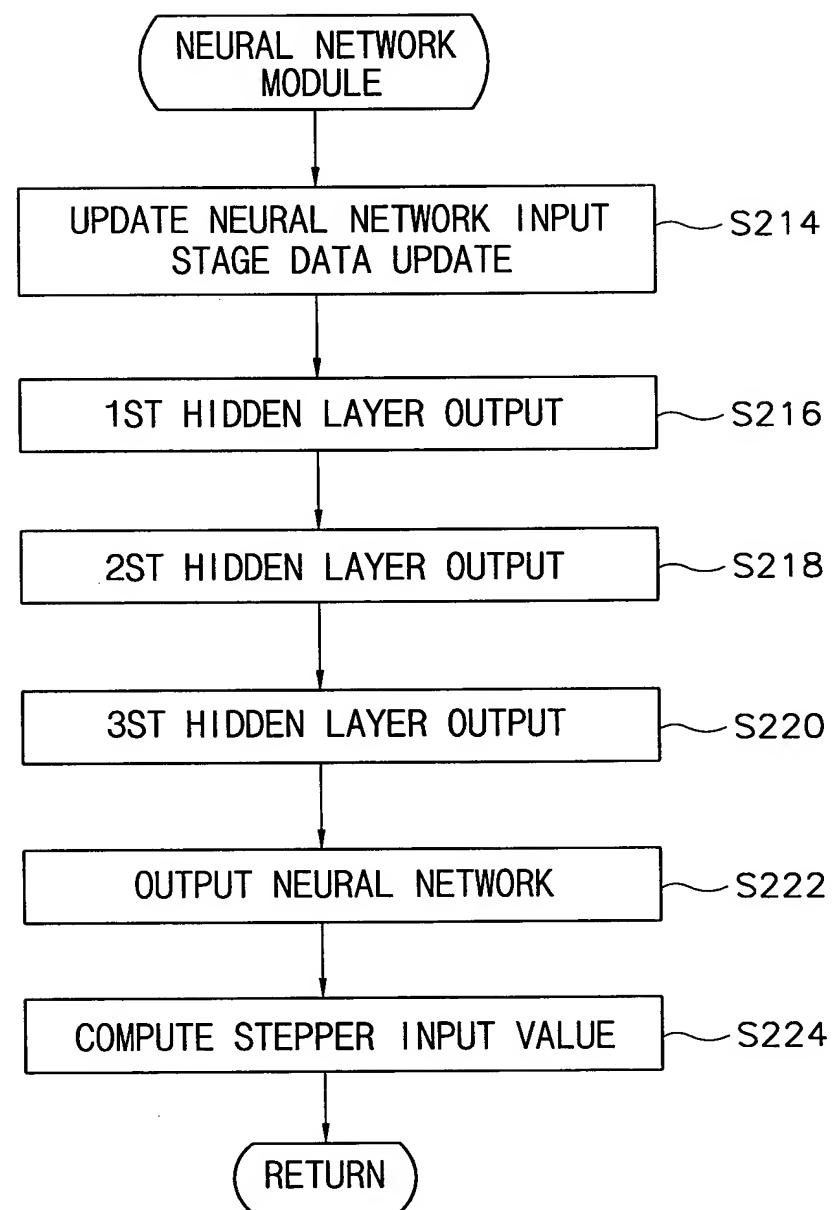


FIG. 20

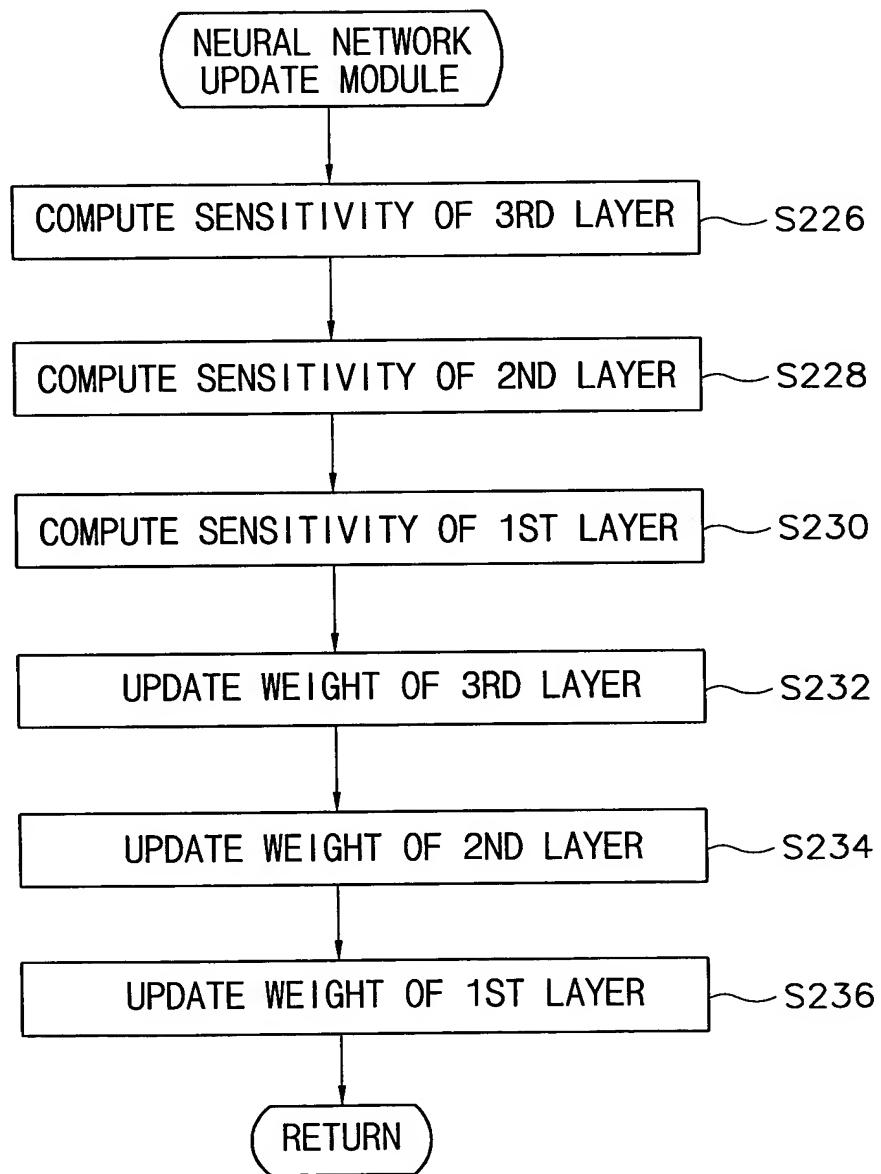
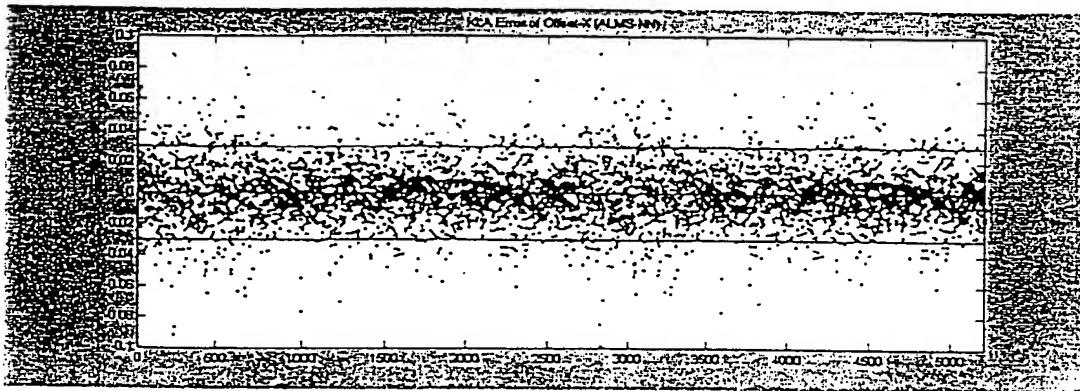
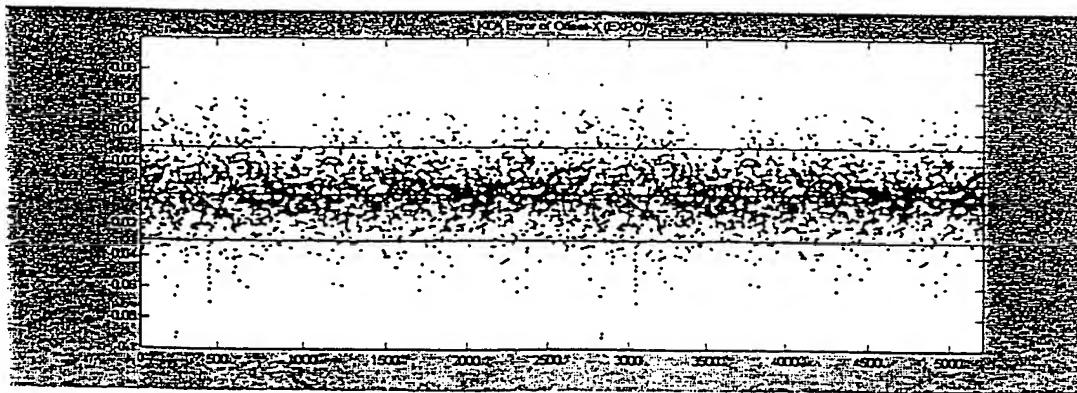


FIG. 21

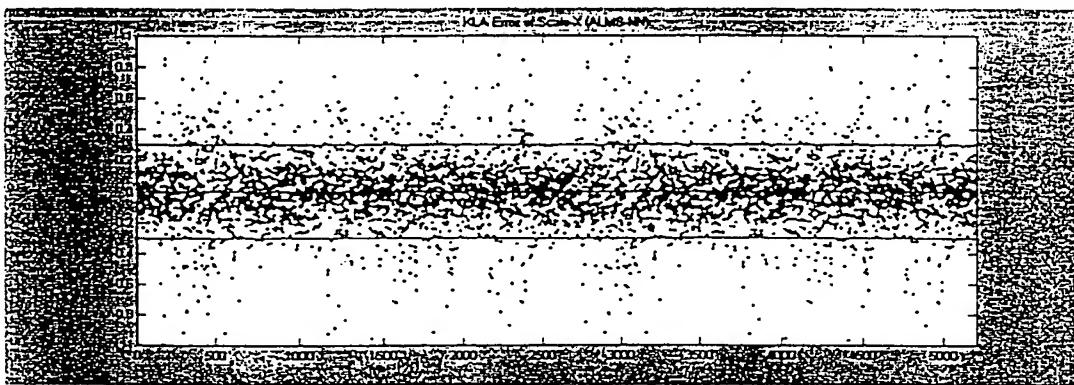


MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF OFFSET-X (ALMS-NN)

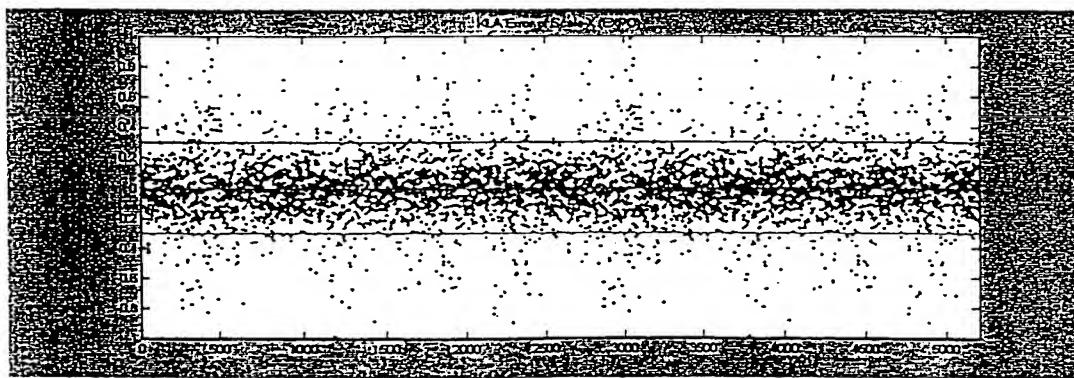


MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF OFFSET-X (TRADITIONAL SYSTEM)

FIG. 22

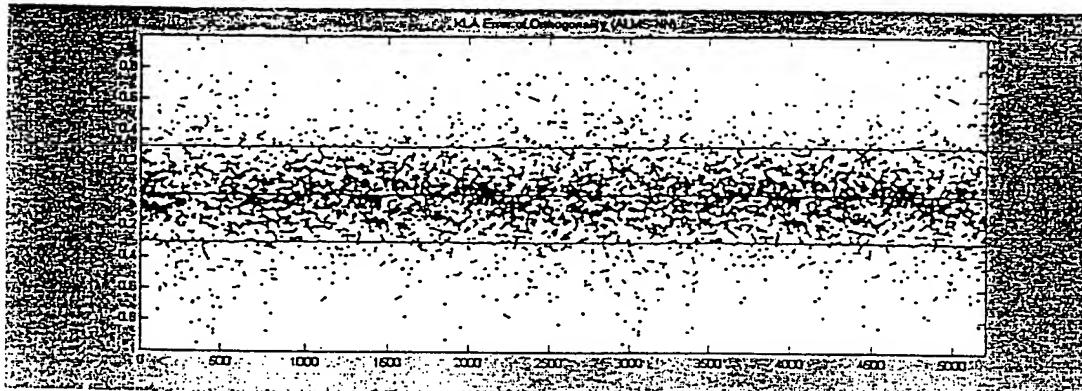


MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF SCALE-X (ALMS-NN)

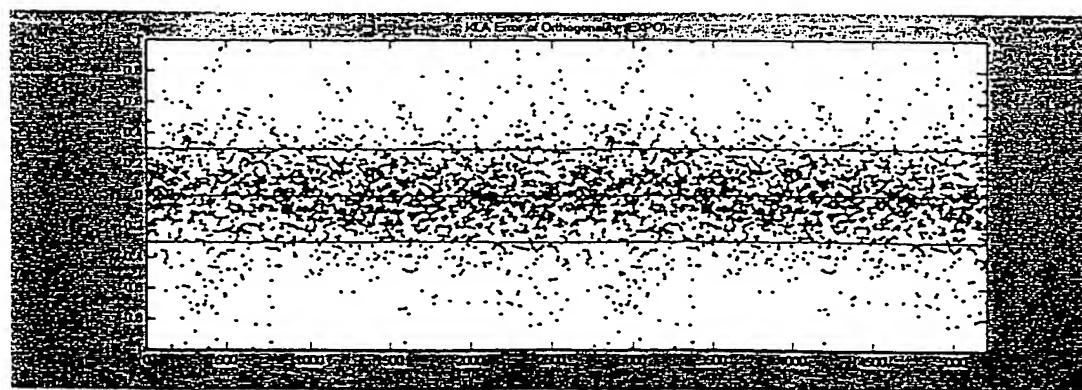


MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF SCALE-X (TRADITIONAL SYSTEM)

FIG. 23



MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF ORTHOGONALITY (ALMS-NN)

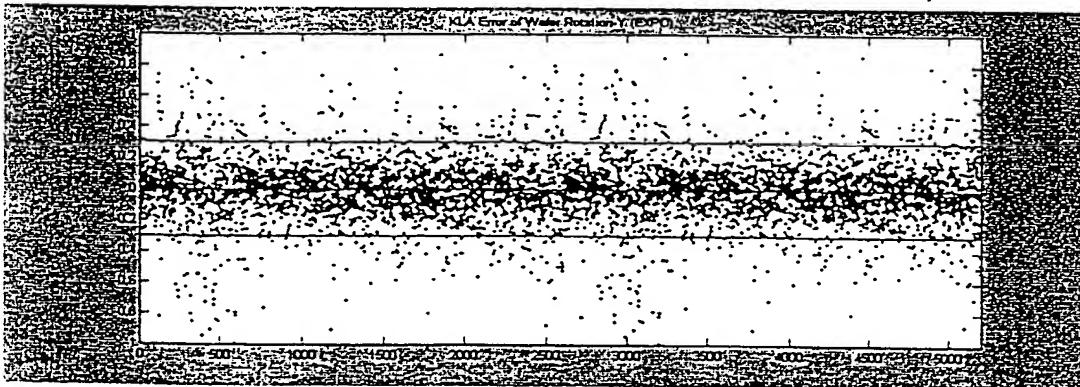


MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF ORTHOGONALITY (TRADITIONAL SYSTEM)

FIG. 24



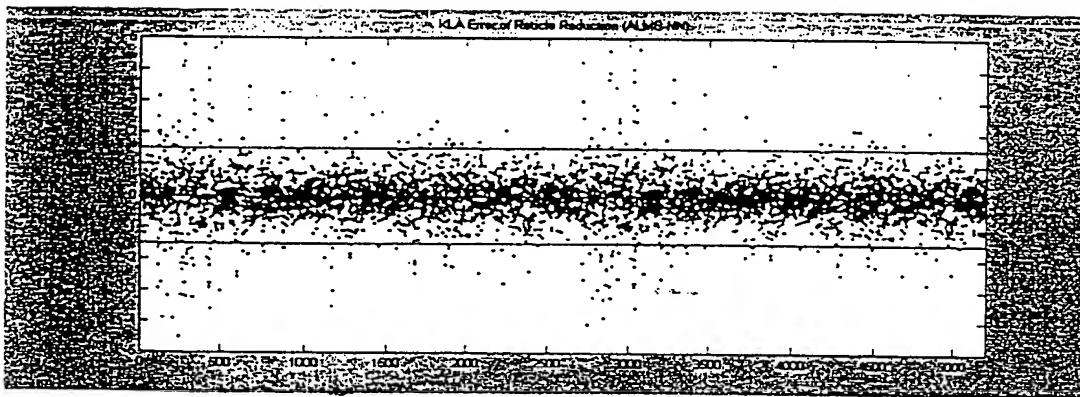
MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF WAFER ROTATION-Y (ALMS-NN)



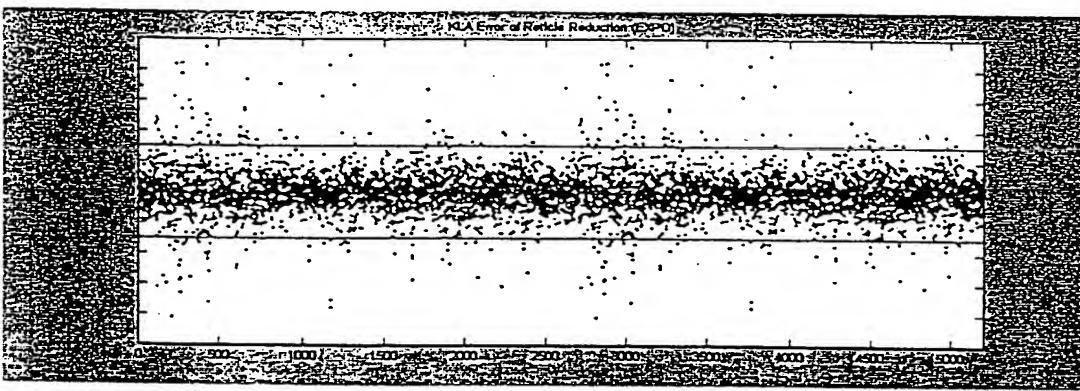
MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF WAFER ROTATION-Y (TRADITIONAL SYSTEM)

JUNO E 9021-021202

FIG. 25



MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF RETICLE REDUCTION (ALMS-NN)



MEASUREMENT ERROR DISTRIBUTION OF MEASURER
INSTRUMENT OF RETICLE REDUCTION (TRADITIONAL SYSTEM)

100% 90% 80% 70% 60%

MEASUREMENT ERROR COMPARISON OF MEASURER
INSTRUMENT OF OFFSET-X

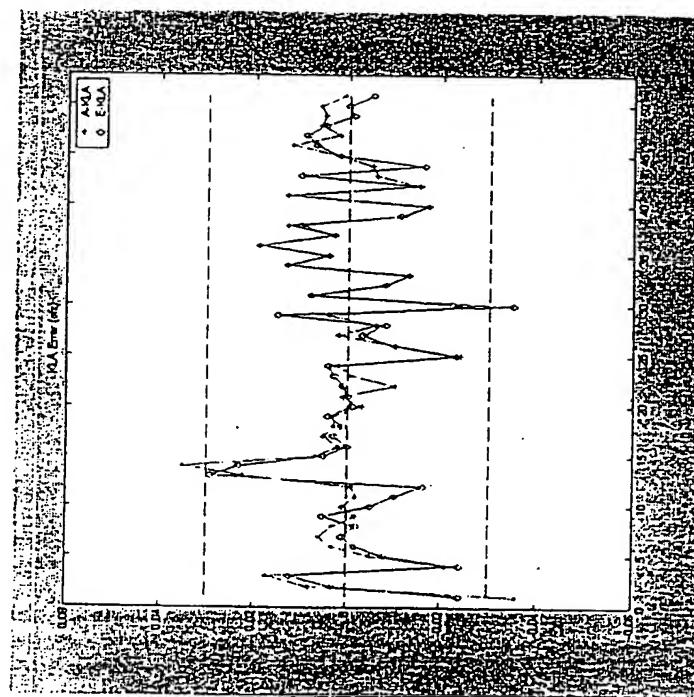
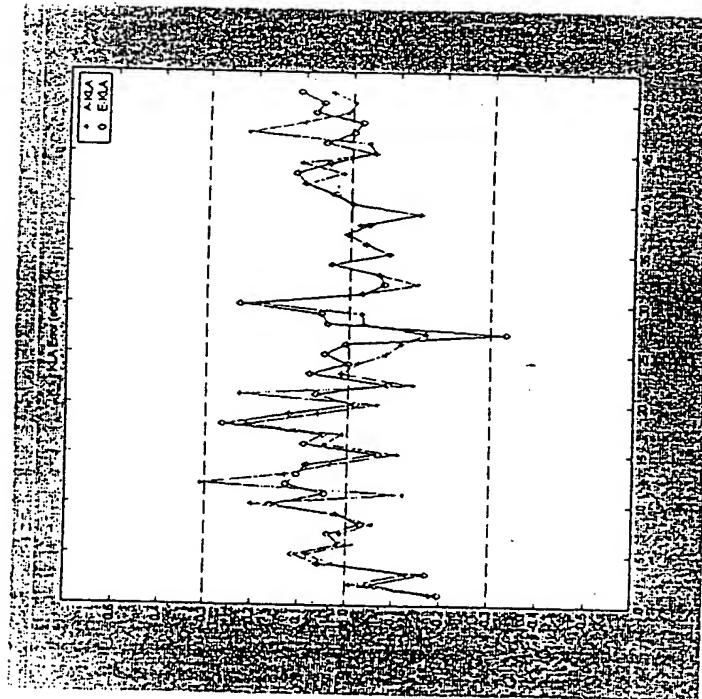


FIG. 26

202 TR 10 " TIDES 22 900 T

FIG. 27



MEASUREMENT ERROR COMPARISON OF MEASURER
INSTRUMENT OF SCALE-X

MEASUREMENT ERROR COMPARISON OF MEASURER
INSTRUMENT OF ORTHOGONALITY

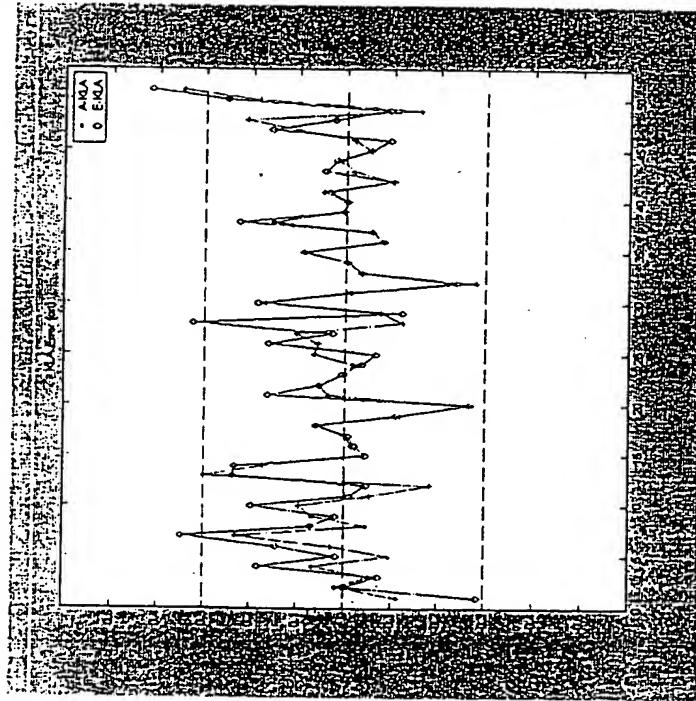
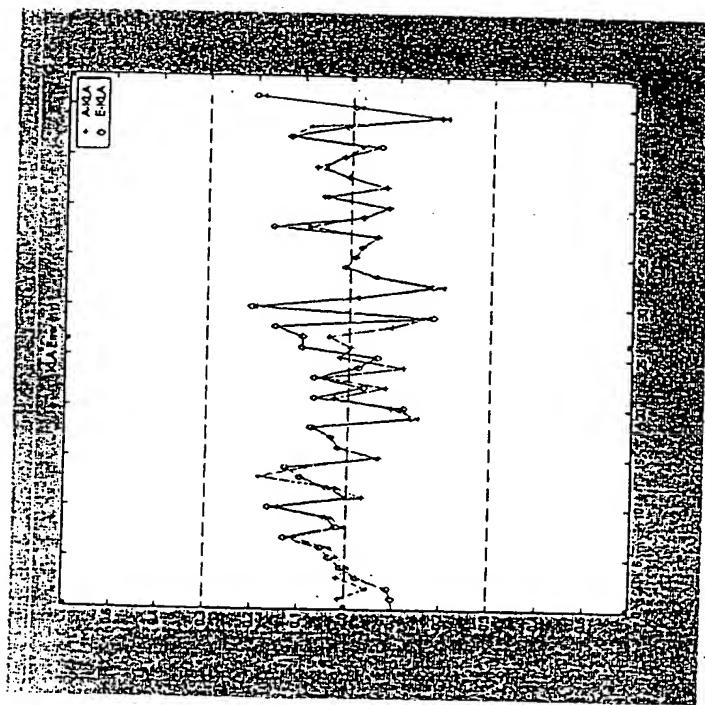


FIG. 28

20030000000000000000000000000000

FIG. 29



MEASUREMENT ERROR COMPARISON OF MEASURER
INSTRUMENT OF WAFER ROTATION-Y

MEASUREMENT ERROR COMPARISON OF MEASURER
INSTRUMENT OF RETICLE REDUCTION

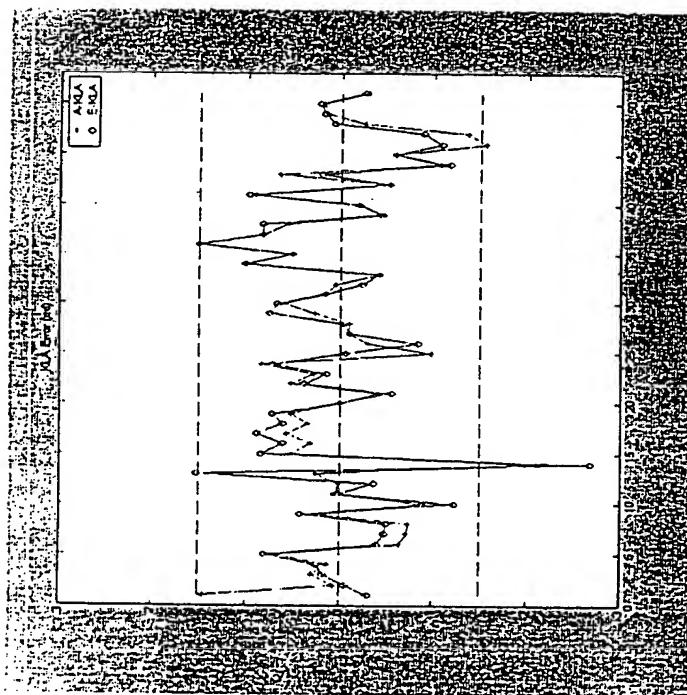


FIG. 30

APPARATUS INPUT VALUE FORMAT OF OFFSET-X

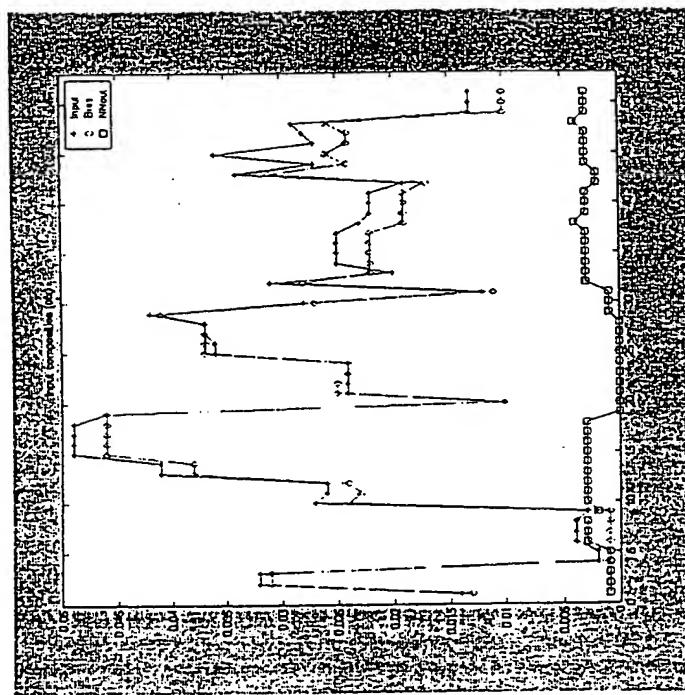
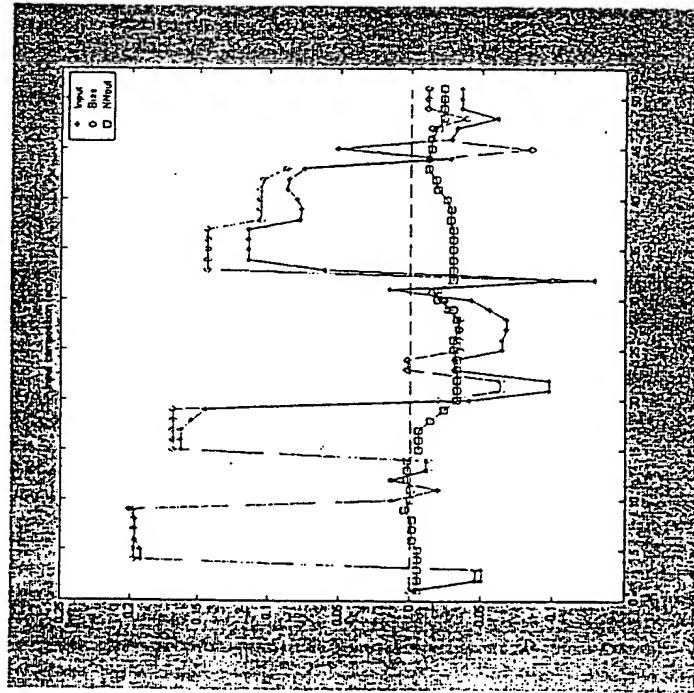


FIG. 31

2020 " TDS-X 90%

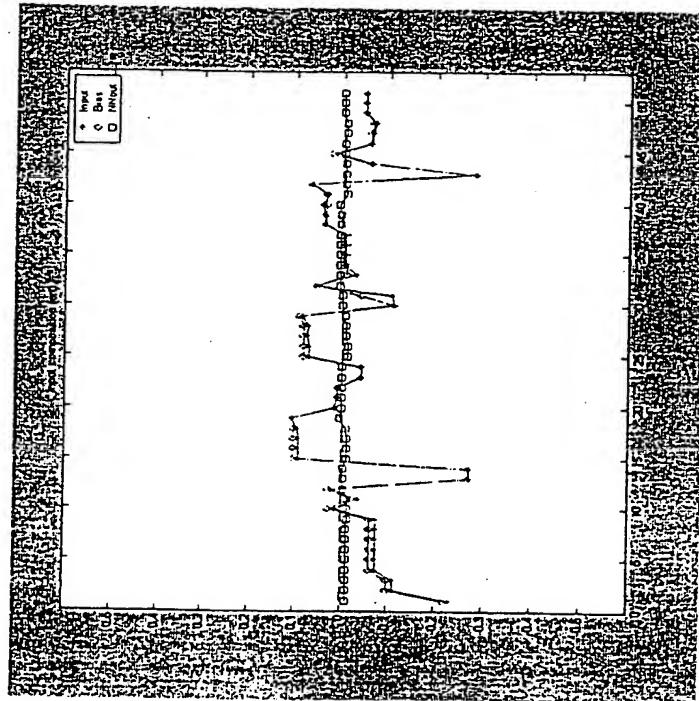
FIG. 32



APPARATUS INPUT VALUE FORMAT OF SCALE-X

2010 RELEASE UNDER E.O. 14176

FIG. 33



APPARATUS INPUT VALUE FORMAT OF ORTHOGONALITY

APPARATUS INPUT VALUE FORMAT OF WAFER ROTATION-Y

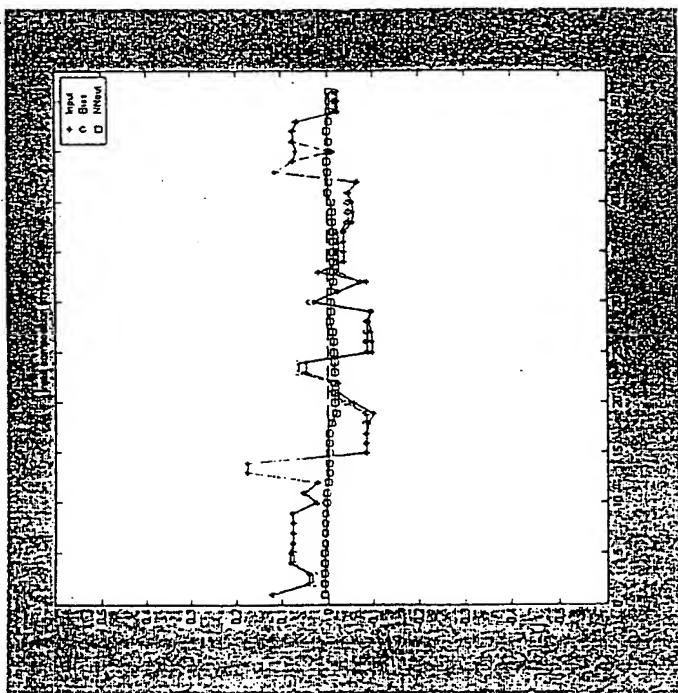
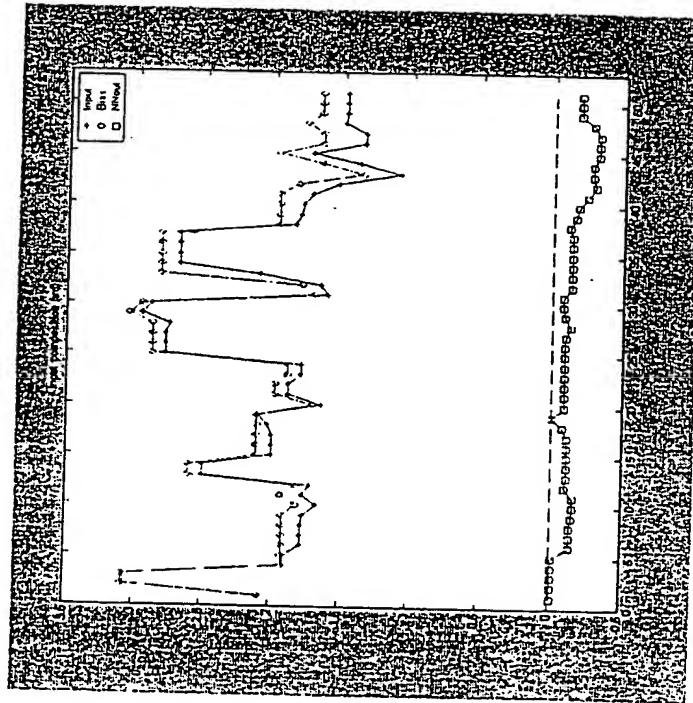


FIG. 34

2024 RELEASE UNDER E.O. 14176

FIG. 35



APPARATUS INPUT VALUE FORMAT OF RETICLE REDUCTION